SPEAK UP!™

With Text to Speech

A Machine Language Voice Synthesizer Prog...
for the TRS-80 Color Computer*

Written by David Dubowski for

Classical Computing, Inc.
P.O. Box 12247
Lexington, KY 40582

©1983 *Classical Computing, Inc.*
Unauthorized Reproduction is prohibited by law.
Manufacturer's liability limited to replacement of tape if defective.

Owner Serial Number 161

*TM Tandy Corp.

INSTRUCTIONS

Congratulations! You have purchased an exciting utility for your color computer. With it you will have hours of fun. But the real thrill comes when you find how easy it is to make your Basic programs talk! **SPEAK UP!** is a surprisingly compact program, containing a voice synthesizer and a simple text to speech converter in just over 7K. It is simple to use, and it's fun!

Here's how to make the color computer **SPEAK UP!**

The tape supplied has two sides. Side 1 is for 16K machines and Side 2 is for 32K machines. Be sure to use the correct side.

Getting Started

Turn on the computer and TV set. The voice will come from the TV speaker. Load the cassette, rewind and play.

16K (Side 1)	32K (Side 2)
type: CLEAR 200,9065	type: CLEAR 200,25449
type: CLOADM	type: CLOADM
type: EXEC	type: EXEC

CSAVEM "SPEAK UP", 25449, 32765, 2544

Now type in what you want it to say! Press break or reset to quit.

Interfacing Color Basic*

When the program is in the computer, you can make basic programs talk.

Example:

16K	32K
10 PRINT @ 0,"HELLO."	10 PRINT @ 0,"HELLO."
20 EXEC 9629	20 EXEC 26013
RUN	RUN

Be sure to end the sentence with a period, exclamation, or question mark when using this mode.

Interfacing Extended Color Basic*

Example:

16K	32K
10 DEFUSR = 9676	10 DEFUSR = 26060
20 A$ = "HELLO"	20 A$ = "HELLO"
30 Y = USR(VARPTR(A$))	30 Y = USR(VARPTR(A$))
RUN	RUN

IF YOU HAVE PROBLEMS. . .

The program is saved three times on each side so if you keep getting "IO ERRORS", fast forward the tape to the next saving.

Be sure to clear memory as shown in "Getting Started" before you CLOADM the program.

If you get "OS Error" you can reserve more memory for strings by typing 'CLEAR 400' or 'CLEAR 1000' or whatever you need.

If you get "OM ERROR" you can reduce string space by typing 'CLEAR 20'.

If the computer keyboard doesn't respond, press the reset button. If reset doesn't work, you need to turn the computer off and reload the **SPEAK UP!** program. This shouldn't happen unless you POKE or EXEC a wrong number. The keyboard is disabled during speech.

The screen read part of the program will stop at the **FIRST** occurence of a period, question mark, or exclamation. If you want to print @ 0 two sentences, don't put a period between them! If you forget the period, question mark, or exclamation altogether, it will say the first 255 characters on the screen, including spaces, which are pauses.

TECHNICAL INFORMATION

The sound output goes not only to the TV speaker, but also to the gray cassette record plug. You can record the voice output directly with the cassette.

There are 37 phonemes incorporated into **SPEAK UP!** to produce speech. Two phonemes in english 'ZH' and 'NG' were eliminated to conserve memory. 'ZH' is rarely used, as in the word 'MEASURE', and can easily be imitated by 'SH' or 'Z'. 'NG' is just the combination of 'N' and 'G'. The phonemes 'R' and 'ER' are so similar that they are considered the same by **SPEAK UP!** Numbers and graphics characters are skipped. A space produces one pause, a comma produces two, and a period produces three. See the last page for grammar rules. Up to 255 characters can be spoken at once.

The tone of voice is controlled by the delay byte, located at 9281 for 16K, or 25665 for 32K. Normally it is 13. You can poke it with other values to change the vocal characteristic.

Now have some fun with **SPEAK UP!**

If you have any questions or comments about **SPEAK UP!**, write Classical Computing, Inc., P.O. Box 12247, Lexington, KY 40582.

HELPFUL INFORMATION. PLEASE READ!

These are the entry addresses:

	16K	32K
Introduction	9065	25449
Screen Read	9629	26013
USR Function	9676	26060

It is essential to clear memory as shown in "Getting Started." Otherwise, Basic will write over **SPEAK UP!** Both the 16K and 32K versions take up 7318 bytes of ram memory.

If you have extended color basic, and don't need to use graphics, you can free an extra 1.5 K of ram by typing in the following:

```
POKE 25,6
POKE 26,1
NEW
```

Unlike Basic Programs, **SPEAK UP!** is not erased by the 'NEW' command.

Ignore any "SN ERROR" messages that may occur after **SPEAK UP!** talks. This is normal and usually occurs only the first time it runs.

The text to speech part of the program is limited in order to keep the program short and conserve memory. If something is mispronounced, try spelling it differently. For example: "Computer is pronounced better as "Compyewter". See the last page for letter pronunciations and grammar rules.

EXAMPLE PROGRAM

```
5 REM USES SCREEN READ FOR 16K.
6 REM CHANGE ADDRESS TO 26013 AND VOICE TO 25665 FOR 32K.
7 ADDRESS = 9629
8 VOICE = 9281
10 CLS
20 PRINT @ 0,"WHAT IS YOUR NAME?"
30 EXEC ADDRESS
40 INPUT N$
50 PRINT @ 0,"HELLO";N$;"."
60 EXEC ADDRESS
70 A = RND(100)
80 B = RND(100)
90 PRINT @ 0,"WHAT IS THE SUM OF THE NUMBERS?"
100 EXEC ADDRESS
110 PRINT A;"+";B;"="
120 INPUT SUM
130 IF SUM = A+B THEN A$ = "CORRECT YOU GOT IT!" ELSE A$ = "INCORRECT."
140 CLS
150 PRINT @ 0,A$
160 IF SUM = A+B THEN POKE VOICE,10
170 EXEC ADDRESS
180 POKE VOICE,13
190 IF SUM = A+B THEN 70 ELSE 110
```

KA4WTT
JERRY PORTER
4211 SUNFLOWER AVE.
LOUISVILLE. KY. 40216

Here are some examples of how to spell words to make them sound better:

Regular Spelling	For Better Pronunciation
ONE, TWO, FIVE	WUN, TUE, FIEV
ENERGY	ENERJY
PRESSURE	PRESHER
TELEVISION	TELEVISHUN
SOCCER	SAHKER
CALL	CAWL
OF	UV
KNIGHT	NIET
XYLOPHONE	ZIELOPHONE
CHAMPAGNE	SHAMPAYN
SYNTHESIZER	SINTHESIEZER
SAME	SAYM

PAIRED LETTERS

SPELLING	SOUNDS LIKE
AR	TAR
AH	FATHER
AY	PLAY
AW	STRAW
EE	SEE
ER	HER
IE	TIE
OR	STORE
OW	NOW
OO	FOOT
OY	TOY
UE	BLUE
SH	SHIP
CH	CHIP
TH	THIS

SINGLE LETTERS

SPELLING	SOUNDS LIKE
A	HAT
E	LET
I	HIT
O	NO
U	CUT
B	BIG
C	CAT
D	DOT
F	FIT
G	GO
H	HELLO
J	JELLY
K	KILL
L	LIST
M	MIST
N	NEXT
P	PET
R	RAT
S	SIT
T	TEST
V	VAT
W	WILL
Y	YOU
Z	ZAP

IRREGULAR PAIRED LETTERS

AI	= AY
AU	= AW
CC	= K+S
CK	= K
EA	= EE
EW	= UE
EY	= EE
GH	= F
IR	= ER
OI	= OY
OT	= AH+T
OU	= UE
PH	= F
QU	= K+W
WH	= H+W
X	= K+S

[redacted]

SPECIAL RULES

'/' after a letter makes it single. For Example: 'E/E' = E+E instead of EE.

'Y' at end of a word = EE.

'E' at end of word silent, except after B,H,M, or W.

'C' Before I or E - S.

'I' at end of word or by self = IE.

Space = 1 pause.

Comma = 2 pauses.

Period = 3 pauses or stop in screen read mode.